REMARKS

Claims 12-14 and 16-20 are currently pending in this application, with claim 12 being the only independent claim. Dependent claim 15 has been canceled. Independent claim 12 has been amended to incorporate the subject matter of canceled dependent claim 15. Reconsideration of the above-identified application, as herein amended, is respectfully requested.

Claims 12-14 and 18 stand rejected under 35 U.S.C. §103(a) as unpatentable over U.S. Patent No. 4,255,789 ("*Hartford*") in view of U.S. Patent No. 4,727,549 ("*Tulpule*").

Claim 15 stands rejected under 35 U.S.C. §103(a) as unpatentable over *Hartford* in view of *Tulpule*, and further in view of U.S. Patent No. 4,916,698 ("*McCann*").

Claims 16 and 17 stand rejected under 35 U.S.C. §103(a) as unpatentable over *Hartford* in view of *Tulpule*, and further in view of U.S. Patent No. 5,406,485 ("*Wise*").

Claim 19 stands rejected under 35 U.S.C. §103(a) as unpatentable over *Hartford* in view of *Tulpule*, and further in view of U.S. Patent No. 6,568,267 ("*Chida*").

Claim 20 stands rejected under 35 U.S.C. §103(a) as unpatentable over *Hashimoto* in view of *Tulpule*, and further in view of U.S. Patent No. 6,366,005 ("*Ishikawa*"). For the following reasons, reconsideration and withdrawal of these rejections are respectfully requested.

Independent claim has been amended to incorporate the subject matter of dependent claim 15 (now canceled). Thus, amended independent claim 12 recites the limitation "the checking section including checking components designed for continuous checking of the functional components, the checking components comprising a test injector producing and supplying test signals to the functional components, the checking components testing the functional components and measuring a reaction of the functional components to the test signals...". No new matter has been added.

The Examiner (pg. 5) of the Office Action concedes the combination of *Hartford* and *Tulpule* fails to teach or suggest checking components that comprise a test injector producing and supplying test signals to the functional components, the checking components testing the functional components and measuring a reaction of the functional components to the test signals, as recited in dependent claim 15. *McCann* has been cited to provide this feature. However, Applicants disagree that the combination of *Hartford*, *Tulpule* and *McCann* teaches the limitations of now amended independent claim 12.

The Examiner (pg. 2 thru 3 of the Office Action) asserts that:

> McCann teaches a failure detection mechanism for microcontroller based control system comprising a speed sensor and signal conditioning circuitry acting as part of functional components (column 2, lines 25-31 and 38-41) and a microprocessor acting as part of a checking section that comprises a test injector producing and supplying test signals to the functional components, the checking components testing the functional components and measuring a reaction of the functional components to the test signals (column 3, lines 5-13).

Applicants disagree with the foregoing assertion because, as will be described in more detail below, *McCann* fails to teach or suggest that that the microprocessor includes a "test injector producing and supplying test signals to the functional components", as expressly recited in independent claim 12.

McCann relates to "a failure detection mechanism which inhibits control of electrically actuated mechanisms during malfunction of a microcontroller normally used to control such mechanisms" (see col. 1, lines 6). *McCann* teaches that a watchdog circuit is provided. According to *McCann*, the watchdog circuit is connected to the watchdog port of a microcontroller, and transmits an enable signal to solenoid drive circuits that are responsive to output signals from the microcontroller (see col. 1, lines 54-58). *McCann* (col. 1, lines 62-65) explains that "the enable signal is transmitted by the watching circuit only when the pulses at the

watchdog port of the microcontroller are within a predetermined, relatively narrow frequency range about the standard operating frequency of pulses at the watchdog port". *McCann* (col. 1, lines 62-65) additionally explains that "the present invention assures that, except in the extremely unlikely chance that the microcontroller will fail with the watchdog pulses at the prescribed frequency, the solenoid valves will not be actuated during failure of the microcontroller or of any other component in the system".

McCann (col. 2, lines 34-38; FIG. 1) further teaches that an "electronic control unit **12** includes a microcontroller generally indicated by the numeral **18** which is programmed to generate signals controlling the control valve **16** in response to input signals received from the sensors **14**". According to *McCann*, the "electronic control unit **12** further includes signal conditioning circuitry **20** which receives signals from the speed sensors **14** and transmits them to the microcontroller **18**" (see col. 2, lines 38-41).

McCann (col. 2, lines 41-45) explains "[t]he signal conditioning circuits **20** includes self-test circuitry which tests for correct operation of the signal conditioning circuit **20** and also checks that the sensors **14** are not disconnected or short-circuited. Consequently, it is the signal conditioning units that include circuitry for performing self tests and for ensuring that the sensors 14 are not short circuited. The microcontroller of *McCann* only "initiates the self-check circuits of the signal conditioning circuitry **20** upon system power-up by generating a control signal through output line 22, which connects the microcontroller with the conditioning circuits 20. *McCann* thus teaches that a signal is supplied to the signal conditioning circuit by the microcontroller. However, the micro-controller of *McCann* does not determine the correct operation of the signal condition circuit or the sensor and does not inject test signals.

Accordingly, *McAnn* fails to teach or suggest that the microprocessor in a checking circuit of *McCann* includes "a test injector producing and supplying test signals to the functional components, the checking components testing the functional components and measuring a reaction of the functional components to the test signals...", as now recited in independent claim 12. Rather, the production and supply of test signals is performed by the self-test circuitry within the signaling conditioning circuits 20, which are part of the functional circuit.

McCann (col. 2, lines 52-61) teaches that the microcontroller 18 generates output signals which are transmitted by output bus 26 to solenoid drive circuit 28, which drives the electrically actuated solenoids contained within the control valve 16, in response to the signals received from sensors 14. That is, the microcontroller monitors operation of the drive circuit through a feedback loop 30, which is used by the microcontroller to verify that the control commands transmitted through a bus 26 are correctly implemented by the drive circuit. Clearly, *McCann* teaches the verification of the correct implementation of commands at a drive circuit is monitored based on a feedback loop. Since the microcontroller of *McCann* does not inject test signals to the functional circuits, there is no measurement by the microcontroller of a reaction of the functional components (i.e., of the sensor 14) to test signals from the microcontroller, as recited in independent claim 12.

Moreover, *McCann* (col. 2, line 67 thru col. 3, line 5) states "[t]he microcontroller 18 is also capable of checking itself. Internal programs within the microcontroller **18** verify that all program memory is operable and also verifies random access memory (RAM) by writing and reading various bit patterns to and from the RAM. Test routines also verify data instruction decoding logic within the microcontroller **18**. The various input/output ports are checked as part of the sensor and signal conditioning **20** and drive circuit **28** tests. Stimuli for these tests are

transmitted from the microcontroller and the appropriate responses are returned as described above. Assuming that everything is operating properly, the microcontroller program is arranged to toggle a watchdog output line generally indicated by the numeral **32** at a predetermined rate". Thus, col. 2, line 67 - col. 3, line 5 of *McCann* clearly teaches the generation of a self-test signal that is used to determine whether the micro-controller itself is functioning, as opposed to whether the sensors (i.e., applicants' functional components) are functioning. *McCann* therefore fails to teach or suggest the "checking components comprising a test injector producing and supplying test signals to the functional components, the checking components testing the functional components and measuring a reaction of the functional components to the test signals", as recited in now amended independent claim 12.

The Examiner cites *Wise* in an attempt to cure the shortcomings of the combination of *Hartford* and *Tulpule*, i.e., the function section comprises digitial and analog components, as recited in dependent claim 16 and 17.

Chida has been cited in an attempt to cure the shortcomings of the combination of *Hartford* and *Tulpule*, i.e., the sections are formed by ASICs with dedicated settings, as recited in dependent claim 19.

Ishikawa has been cited in an attempt to cure the shortcomings of the combination of *Hartford* and *Tulpule*, i.e., "the sensor element is a vibration gyro," as recited in dependent claim 20.

However, each of these references fails to cure the deficiency of the device disclosed in *Hartford*, because *Tulpule*, *McCann*, *Wise*, *Chida* and/or *Ishikawa* individually or in combination, fail to teach or suggest "the checking section" or the "monitoring section" recited

in amended independent claim 12. Therefore, amended independent claim 12 is patentable over the combination of the cited art.

Reconsideration and withdrawal of all the rejections under 35 U.S.C. §103(a) are therefore in order, and a notice to that effect is respectfully requested.

In view of the patentability of amended independent claim 12, dependent claims 13, 14 and 16-20 are also patentable over the prior art for the reasons set forth above, as well as for the additional recitations contained therein.

Based on the foregoing amendments and remarks, this application is in condition for allowance. Early passage of this case to issue is respectfully requested.

It is believed that no fees or charges are required at this time in connection with the present application. However, if any fees or charges are required at this time, they may be charged to our Patent and Trademark Office Deposit Account No. 03-2412.

Respectfully submitted,
COHEN PONTANI LIEBERMAN & PAVANE LLP

By _____

Alfred W. Froebrich
Reg. No. 38,887
551 Fifth Avenue, Suite 1210
New York, New York 10176
(212) 687-2770

Dated: December 5, 2007